Flight Type Dishwashers

Electrolux

General features

• Electrolux, the leading choice for catering equipment, introduces its new line of flight type dishwashers.
• Compact, ergonomic design and cost saving, combined with perfect washing results, make the Electrolux flight type dishwasher the best choice for large canteens, in-flight catering, hospitals, hotels and marine installations.
• Electrolux appliances have been designed using a modular approach, allowing them to be tailored to individual requirements.









• All the new machines have well designed functions making them easier to work with and creating a pleasant working environment.
• The working environment in the dishwashing area is improved with low temperatures, low noise levels and reduced humidity.

• The new flight type dishwashers feature a double skinned structure with thermal and acoustic insulation (less than 70dB).
• Electrolux new generation of flight type dishwashers has been engineered with tried and tested technology.





Reliability









Electrolux flight type dishwashers have been carefully designed to offer long term reliability, even in the most arduous conditions.

Reliability:

• the panels and the inspection doors have a double skin structure in order to reduce noise and heat dispersion

• in order to completely avoid any detergent corrosive action, the tank is made of AISI 316 stainless steel

• all the main elements are made in AISI 304 stainless steel:

- baring structure
- feet
- internal and external panels
- inspection doors
- washing and rinsing arms
- filter plates and filter boxes
- screws
- side support for dishes

• all electric components, wash and rinse pumps are tested to guarantee a long lasting operation of the dishwasher

• Stainless steel washing pumps are standard on version “A”, optional on “B” & “C”. As standard, all the units are equipped with low voltage (24 volt) control panel to guarantee high safety standards and long lasting reliability

Accessibility





Electrolux flight type dishwashers have been designed to be extremely accessible and easy to use.

Accessibility:

• easier maintenance, thanks to the accessibility from the front and sides of the machine
• all the main working components are placed on the front of the machine
• adjustments of the tension of the conveyor belt can be made from the loading side
• the fingers in the conveyor are easily replaceable
• electrical and water service connections can be made from above or below
• the electric control box is clearly organized and centrally located
• the ESD (Energy Saving Device) and condenser unit are accessible via the hinged top

Cleanability

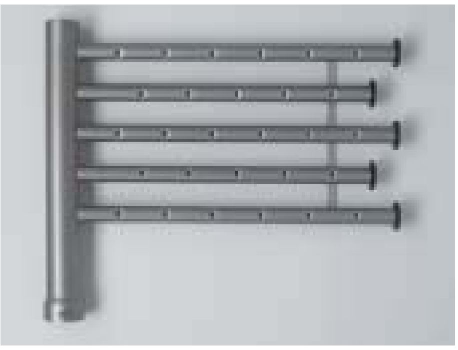




The flight type dishwasher has been specifically engineered to be easily cleanable both internally and externally.

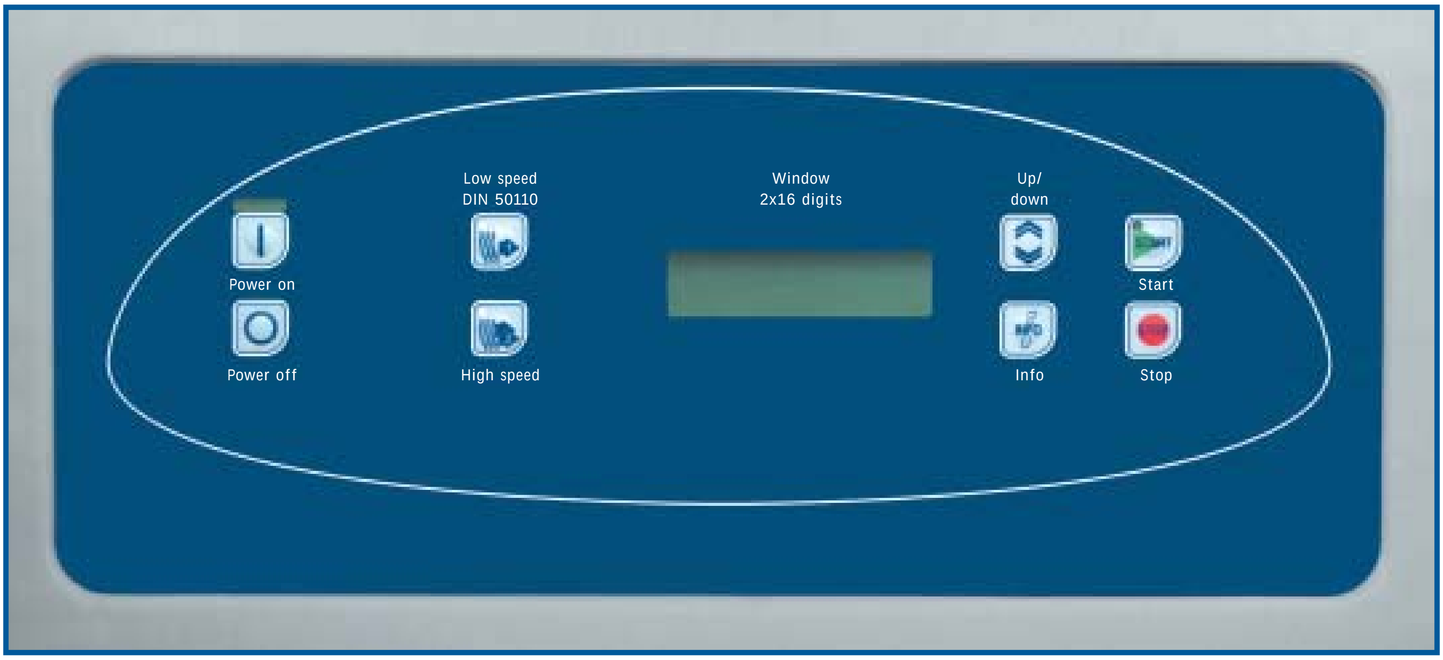
Internal cleanability:
• final wash & rinse area behind one large balanced inspection door to allow an easy access to the washing area
• drying zone with inspection door for cleaning and removal of fallen items
• washing chamber without internal pipes
• internal screws in the wash chamber do not project past the nuts
• the loading end is easily accessible for cleaning and emptying of the large scrap box
• washing arms in stainless steel, easily removable for daily control and cleaning
• double tank filters (flat and box) are easily removable
• tank with round corners to make easy periodical cleaning, avoiding the stagnation of food remains
• sloping base to convey the dirty water towards the drain
• optional cleaning ramp available in loading sections above 700 mm in length

External cleanability:
• smooth external surfaces
• 200 mm height feet enable ease of cleaning under the machine
• loading area without feet
• the back is completely closed so that the machine can be placed against the wall
• IPX 5 water protection





Total control



The electronic control panel has been designed not only to control the dishwasher, but also to provide the operator and engineer a host of useful information that can improve the efficiency and washing performance.

The new digital control panel with HACCP integration and fault diagnosis system is used to read the temperature of all washing, rinsing and drying sections.

• if a fault occurs it will be indicated on the control panel
• as an option it is possible to measure the consumption of water and energy
• in the "Washing mode" pumps and drier stop after one minute if no dishes are loaded in the conveyor and start automatically when dishes enter into the machine
• on request an integrated printer can be installed on the machine, in order to print out all the data about the washing processes, displayed on the window

Stand by mode
The following information can be selected and displayed in the window:
• temperatures: actual and set values • flow limit settings • statistics-today's washing • alarms-today's washing • time left to service • HACCP protocol • print protocol • clear protocol

Washing mode
The following information can be selected and displayed in the window:
• washing efficiency • current alarms • temperatures-actual and set values • flow/speed/electrical power-actual values (if measuring devices are installed) • statistics-today's washing • current alarms-today's washing

Setup mode
In the setup mode the following fields can be set: For the user • date and time • choice of 12 languages • For the technician with access code • temperatures can be altered • timer • HACCP protocols (how to print) • Water flows (option) • contact time (between water and items)

Electrolux

The product range



WTF2

2 tank (standard pre-wash)
4500 mm length
3600 plates/hour



WTF2H

2 tank (heavy duty pre-wash)
4800 mm length
3600 plates/hour



WTF3

3 tank (standard pre-wash)
5800 mm length
5000 plates/hour



WTF3H

3 tank (heavy duty pre-wash)
6100 mm length
5000 plates/hour



WTF4H

4 tank (heavy duty pre-wash)
7400 mm length
7200 plates/hour



General purpose



Optional wide

The product range consists of 5 different sized models available in 3 specificational levels to provide the customer a wide range of machines that can be even further personalized.

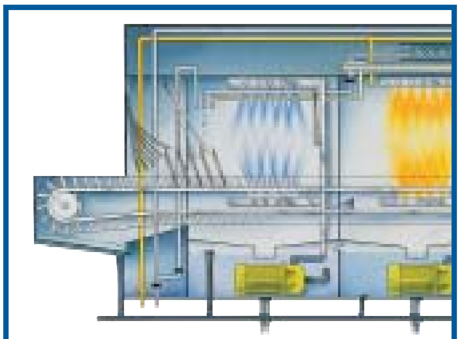
Version "A" – suitable for installations where incoming water temperature is below 15 °C and where usage is going to be particularly heavy and incorporates energy saving device to reduce power requirements by 20/30 kW/h.
No ventilation hood is required.

Version "B" – and suitable for installations where incoming water temperature is below 15 °C but where usage is going to be normal. No ventilation hood required.

Version "C" – suitable for installations where incoming water temperature is 55 °C. Ventilation hood is required.

Version "A"	Version "B"	Version "C"
Drying Tunnel	Drying Tunnel	Drying Tunnel
Energy Saving Device	Energy Saving Device	
Heavy Duty Pump in stainless steel		
Eco pre-scrap arm in prewash tank		

- All models include a 1100 mm long drying tunnel that incorporates an inspection door to collect items that may fall onto the belt
- The standard range is ideal for washing items measuring up to 600 x 400 mm wheareas the wide and high version can wash 744 x 550 mm items
- The wide'n'high versions can take 3 plates instead of 2 for the standard version, so the capacity is increased by 50%
- Version "A" incorporates an eco-scrap arm that uses water from the ESD device to immediately start to "soften" & "wet" items immediately as they enter the machine to wash items that have not been pre-scrapped or when the machine is used mainly on the fast speed
- Version "A" also incorporates as standard high performance stainless steel wash pumps to provide a stronger washing action usually required to wash a lot of gastronorm containers or when the machine is used during heavy conditions
- All Flight type dishwashers are supplied with a multipurpose belt.



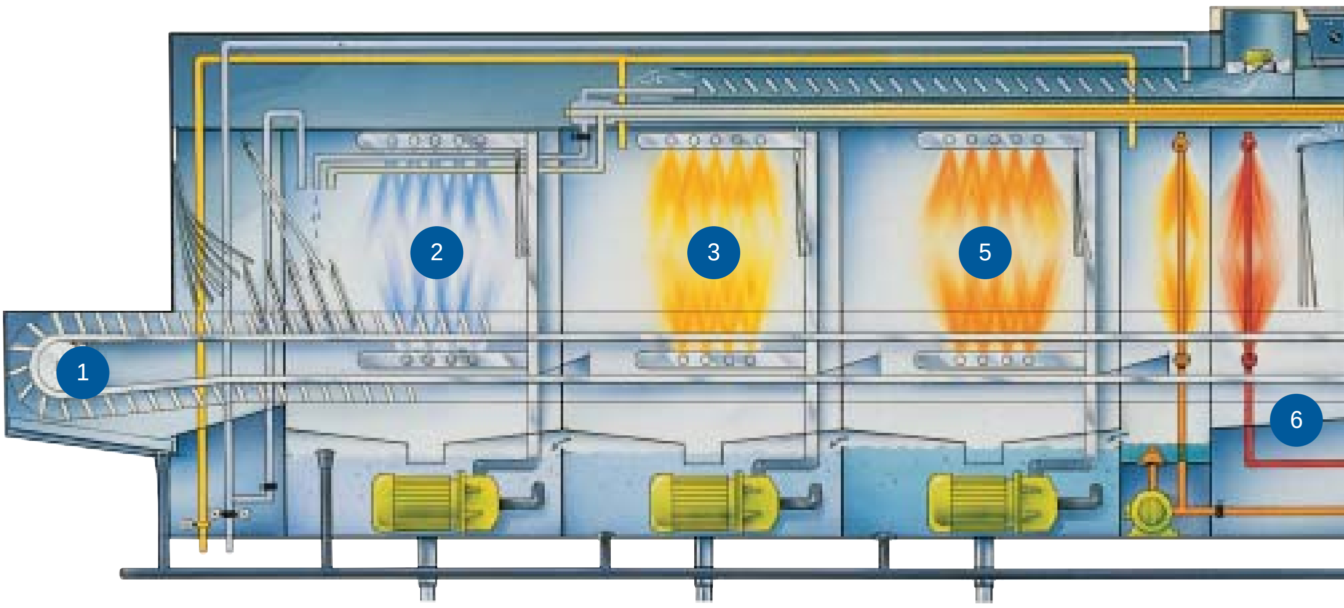
Version "A"



Version "A"

Electrolux

Technical data



1 Loading section All models + versions

Standard length	700 mm
Optional lengths	1200 mm
	1500 mm
	1800 mm
	2400 mm
	3000 mm
	4000 mm

Options: Lateral strainer and "Cross-over" loading section L = 2900 mm

2 Pre wash

	WTF2	WTF2H	WTF3	WTF3	WTF4H
		Heavy duty		Heavy duty	Heavy duty
Tank capacity l	71	107	71	107	107
Temperature °C	30 - 50	30 - 50	30 - 50	30 - 50	30 - 50
Pump power versions “B” and “C”	0,88	2,7	0,88	2,7	2,7
Pump power versions “A”	0,88	4	0,88	4	4

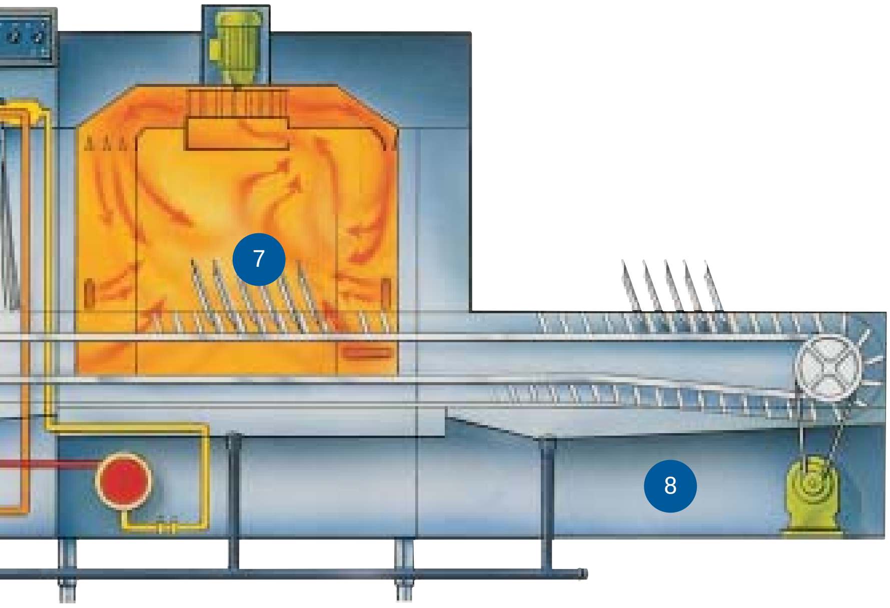
3 Wash with detergent

	WTF2	WTF2H	WTF3	WTF3H	WTF4H
		Heavy duty		Heavy duty	Heavy duty
Tank capacity l	125	125	119	119	113
Heating element kW	15	15	15	15	15
Temperature °C	55 - 65	55 - 65	55 - 65	55 - 65	55 - 65
Pump power versions “B” and “C”	2,7	2,7	2,7	2,7	2,7
Pump power versions “A”	4	4	4	4	4

4 Wash with detergent

	WTF4H
	Heavy duty
Tank capacity l	119
Heating element kW	12
Temperature °C	55 - 65
Pump power versions “B” and “C”	2,7
Pump power versions “A”	4

Options: heavy duty stainless steel pump 4.1 kW available for the standard pre-wash and wash tanks



8 Unloading section

WTF2	700 mm
WTF3	1100 mm
WTF4	1500 mm
Special length	1800 mm
	2400 mm
	3000 mm
	4000 mm

4 Power Rinse without detergent

	WTF3	WTF3H	WTF4H
		Heavy duty	Heavy duty
Tank capacity l	125	125	125
Heating element kW	15	15	15
Temperature °C	65 - 75	65 - 75	65 - 75
Pump power versions “B” and “C”	2,7	2,7	2,7
Pump power versions “A”	4	4	4

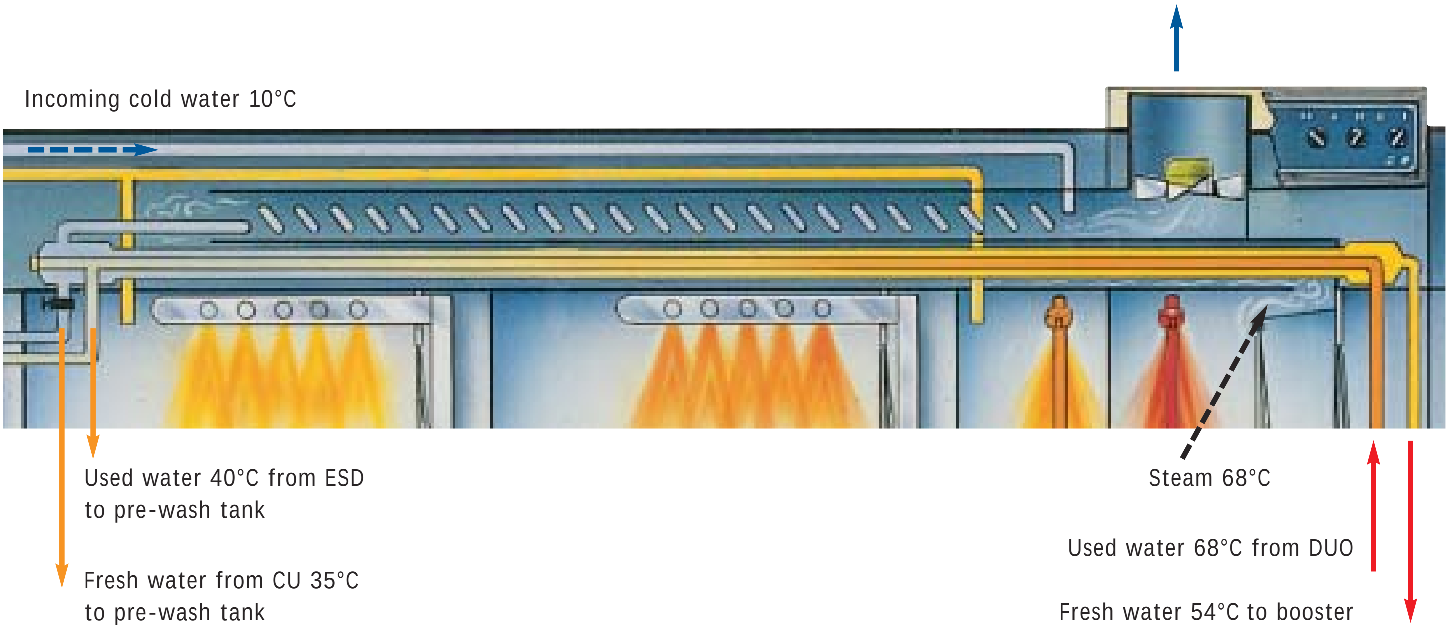
7 Drying section

	All models and versions	
Module length mm	Standard	1100
Temperature °C		40 - 60
Air circulating m³/h		2400
Fan motor kW		0,55
Heating elements kW		9

Options: Double drying tunnel for plastic items that requires long drying time

Total power Electric and Steam models			WTF2	WTF2H	WTF3	WTF3H	WTF4H
Standard models	Electric models	Electric kW - Duo Rinse	47	49	65	67	82
		Electric kW - Twin Rinse	61	61	79	79	94
	Steam models	Electric kW	4,9	6,8	7,8	9,7	12,5
		Steam kg/h - Duo Rinse	66	66	91	91	110
		Steam kg/h - Twin Rinse	85	85	111	111	130
Wide models	Electric models	Electric kW - Duo Rinse	53	53	71	71	86
		Electric kW - Twin Rinse	61	61	79	79	94
	Steam models	Electric kW	7,5	7,5	10,2	10,2	12,8
		Steam kg/h - Duo Rinse	72	72	97	97	116
		Steam kg/h - Twin Rinse	85	85	111	111	130

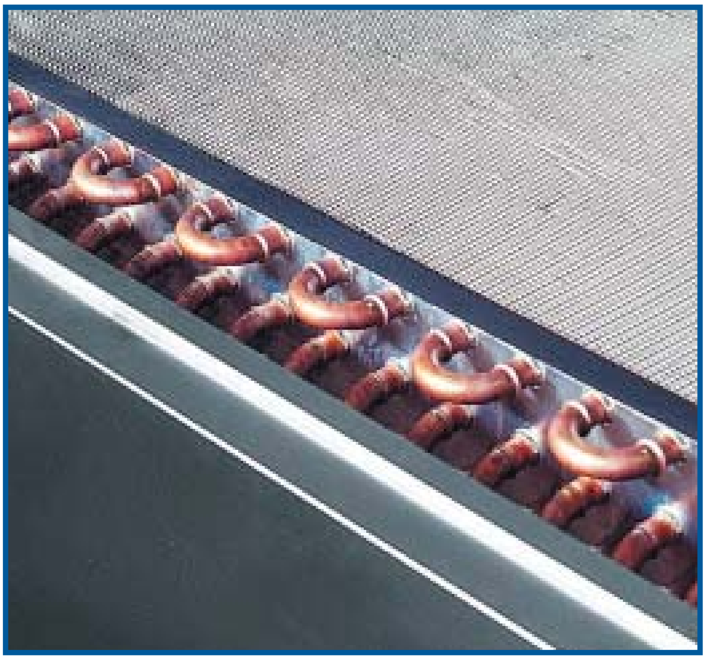
Energy savings



Electrolux energy saving system, as standard on versions “A” & “B”, cuts heating costs by half and saves between 20 to 30 kW/h:

- The energy saving device reduces the electric consumption by pre-heating the incoming cold water using the steam from the dishwasher and part of the used rinsing water, without increasing the heating elements in the boiler
- During the dishwashing process, the machine is taking in cold water via the condenser and at the same time the exhaust fan is extracting the steam, generated in the rinsing and washing zones, forcing it to pass through the aluminium lamellas of the condensing unit. The steam condenses on the cold fins and the heat is transferred to the cold incoming water. The water temperature is increased from ~ 10 °C to ~ 50 °C, that means an initial energy saving by heating up the incoming water of ~ 40 °C.
- The extra price of an “A” or “B” version compared to a “C” version will normally be repayed within one year of use, taking in consideration energy savings and the fact that a ventilation hood is not required



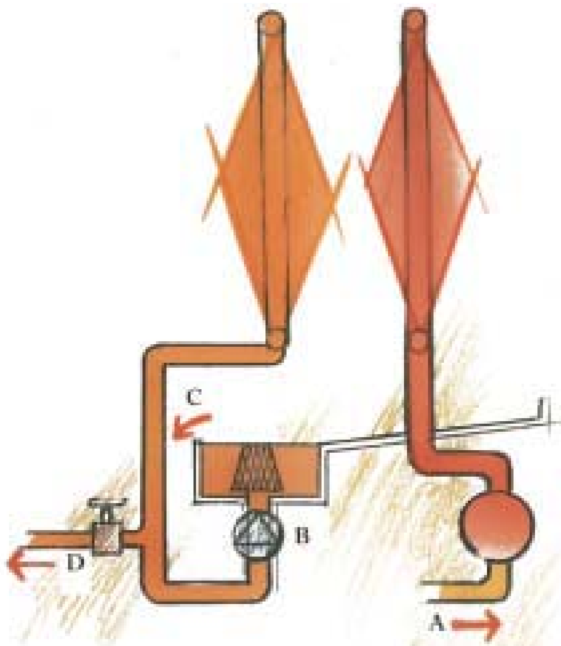


Thanks to the condensing unit, the outgoing air from the machine will be cooled down to ~ 25 °C and have a humidity of 75-80%, so no additional hood is needed over the machine.

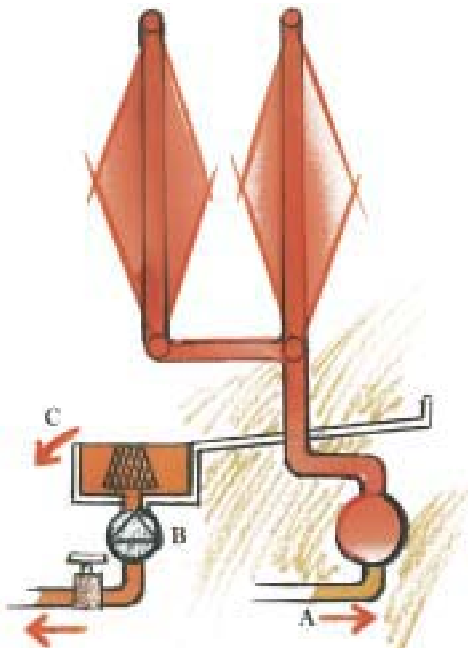
	WTF2	WTF2H Heavy duty	WTF3	WTF3H Heavy duty	WTF4H Heavy duty
Tanks	2	2	3	3	4
Total water Consumption l/h	420	420	450	450	550
Air emission m^3/h	500	500	800	800	800
Air temperature °C	20 - 25	22 - 25	22 - 30	22 - 30	22 - 30
Air humidity %	75 - 85	75 - 85	75 - 85	75 - 85	75 - 85
Air humidity without ESD %	100	100	100	100	100
*Final Rinse consumption l/h	320	320	350	350	450
Energy savings ESD twin rinse	30	30	30	30	30

*maximum values when m/c working all the time

Rinsing system



Standard Duo Rinse



Twin High Temperature Duo Rinse

Electrolux offers 2 final rinse methods:

- The Duo rinse system, standard on all models, which guarantees an excellent rinsing performance and also saves rinsing water, rinse aid and energy by using the same water twice

- The twin high temperature system, as an optional alternative for customers who require a higher level of sanitization or those who need to wash large boxes

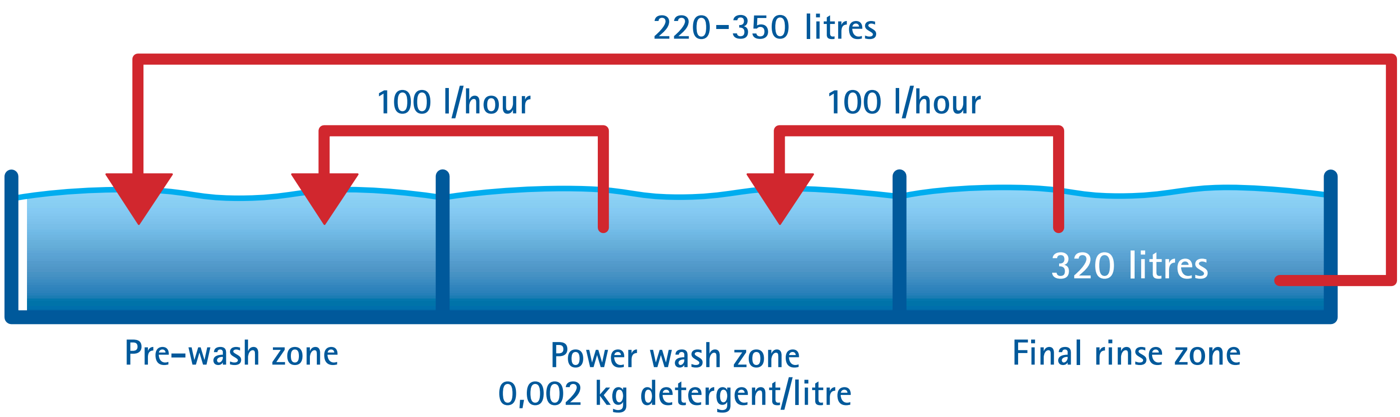
6 Final Rinse

Duo Rinse		Standard	Wide
Temperature °C	1^ramp	65	65
Temperature °C	2^ramp	85	85
Water consumption l/h		320 - 450	420 - 550
Boiler heating elements kW		18	22
Boiler capacity l		16	16

Twin high temperature		Standard	Wide
Temperature °C	Both ramps	85	85
Water consumption l/h		600	800
Boiler heating elements kW		30	30
Boiler capacity l		16	16

Options: demi-water or reverse-osmosis system to optimize the rinsing result for glasses and cutlery

Detergent savings



Detergent saving system:
When the dishwasher is running at full capacity, the water in the tanks is continuously replaced by a flow of water, coming from the final rinse zone and, at the same time, the equivalent amount of water is drained off via the drain-pipe in the pre-wash tank. Electrolux FT dishwasher has been designed to control this flow system in order to keep the right rate of detergent in the washing water longer than the traditional machines.

• In traditional flight type dishwasher all the water from the final rinse runs over to the pre-wash via the wash tank. As the washing water is replaced at the rate of 300-400 litres per hour, new detergent must be added to maintain the required concentration

• The equivalent flow in the new Electrolux flight type dishwashers is only 100 litres per hour. This means saving approx. 0,5 kg detergent per hour! The savings, making a calculation, based on working 7 hours/day for 300 days, considering that the right concentration of detergent is 2 grams per litre, are more than 1 ton of detergent per year (1479 kg/year with a traditional machine vs 420 kg/year with the Electrolux FT dishwasher)

Tailor made customer solutions


Blue stick for baskets


Multipurpose conveyor


Conveyor for small items and cutlery

Electrolux offers a wide range of options to tailor the flight type dishwasher exactly to meet the customers individual requirements.

• this flexibility has allowed us to satisfy the needs of large canteens, in-flight catering establishments, hospitals , hotels and marine installations

• several types of conveyor belts to wash different types of trays, racks or boxes are available

Multipurpose conveyor, (standard and wide version). Capacity each metre: 32- 48 large plates or 16 trays or 2 dishwashing racks, distance between fingers 60 mm.
Accessories. Shafts in blue plastic for easier handling of dishwashing racks.
Conveyor for small items (in-flight kitchen). For FT dishwasher (standard and wide version) with manual loading and unloading of small items, distance between fingers 60 mm.

Combined conveyor for small items (in-flight kitchen) and cutlery. For FT dishwasher (wide version) with manual loading and unloading of small items.
Cutlery can be automatic loaded and unloaded as an option, distance between fingers 60 mm.


Conveyor for insulated trays

Conveyor for serving trays with insulated lids - standard and wide version (Temprite, Aladin...).
Capacity each metre:
10 trays or lids, 20-30 large plates or 2 dishwashing racks, distance between fingers 100 mm.



Conveyor for trays and cutlery



Conveyor for larger items

Electrolux can offer solutions for washing a variety of items, such as plastic boxes, large pots and pans and GN containers.
The machine can be equipped with specific modules in order to guarantee the final washing performance.
The washing and rinsing modules can be combined with neutral sections, to avoid water splashing between the different tanks. A divo-jet system can be inserted between wash tanks to direct concentrated detergent onto heavily soiled items.
The conveyor can be inclined up to 4 degrees in order to get the best drying result. The standard washing arms can be replaced with side washing arms.
The standard wash pumps on versions “B” & “C” can be replaced with heavy duty stainless steel pumps. Loading and unloading modules can be extended up to 4 metres, and also made for cross over systems.
The machine can be integrated with waste management systems such as, waste disposal units, de-watering units, vacuum systems.



Conveyor for trays and cutlery (with automatic loading and unloading)

Combined Flight Type Dishwasher

• The Combined Flight Type WT730 TCW dishwasher has a
completely automated system that will take care of both trays and cutlery, thus eliminating the need for extra workers. Not only will costs be dramatically cut, but operational workflow will also be improved

• The WT730 TCW dishwasher offers the possibility to process up to 1500 trays/h

• The WT730 TCW dishwasher is made of a special conveyor belt with two different tracks – one for trays and one for cutlery. The trays and cutlery will be fully automatically loaded from a cord conveyor

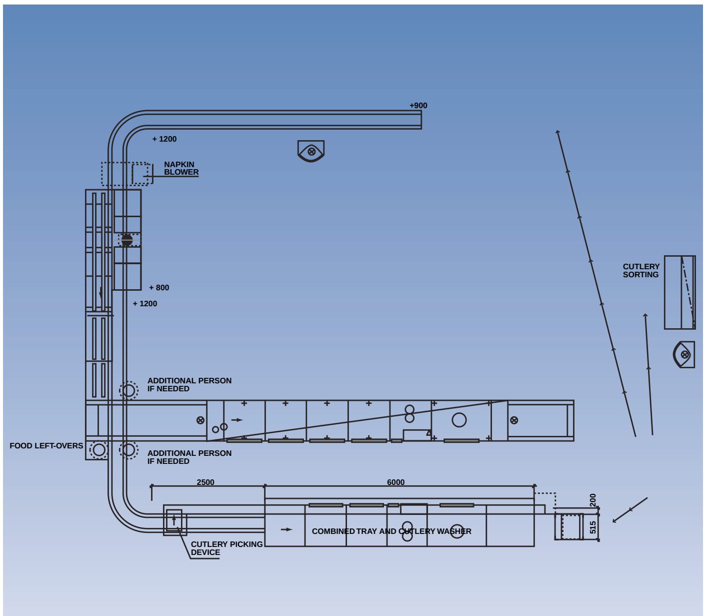
• Both trays and cutlery are collected at the unloading stage by: a lowerator for the trays and a trolley with stainless steel rack for the cutlery

As an option, it is possible to set up the machines so it collects trays from the unloading station to two lowerators, which will give the operator more time to change the full lowerator.

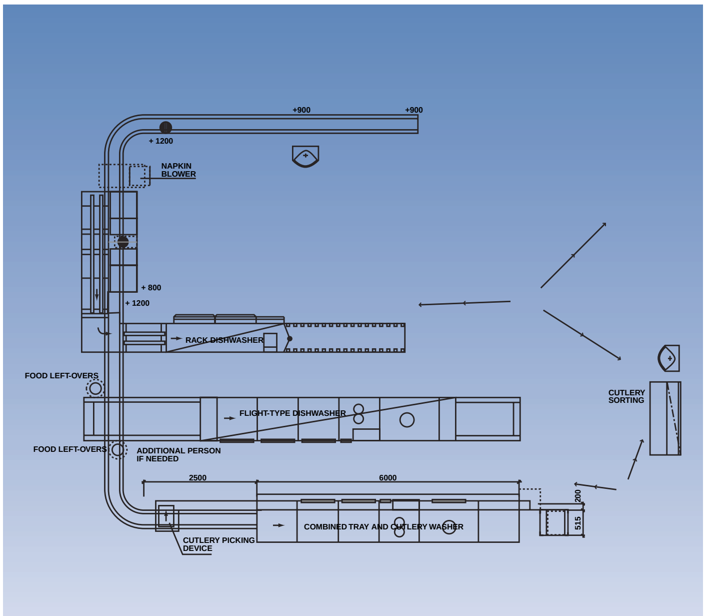




Layout



900 guests /hour



1200 guests /hour

Example of dishwashing layout for 1200 guests/hour kitchen:

- racks with glasses, cups, etc, from the sorting table on a chain conveyor to a rack type dishwasher WT 150 HD
- flight type dishwasher with cross over functions for plates, bowls, etc.
- device for automatic removing of cutlery from the trays
- combined tray and cutlery dishwasher (TCW) with automatic loading of trays and cutlery
- automatic unloading of trays in tray lowerators and of cutlery in a cutlery trolley

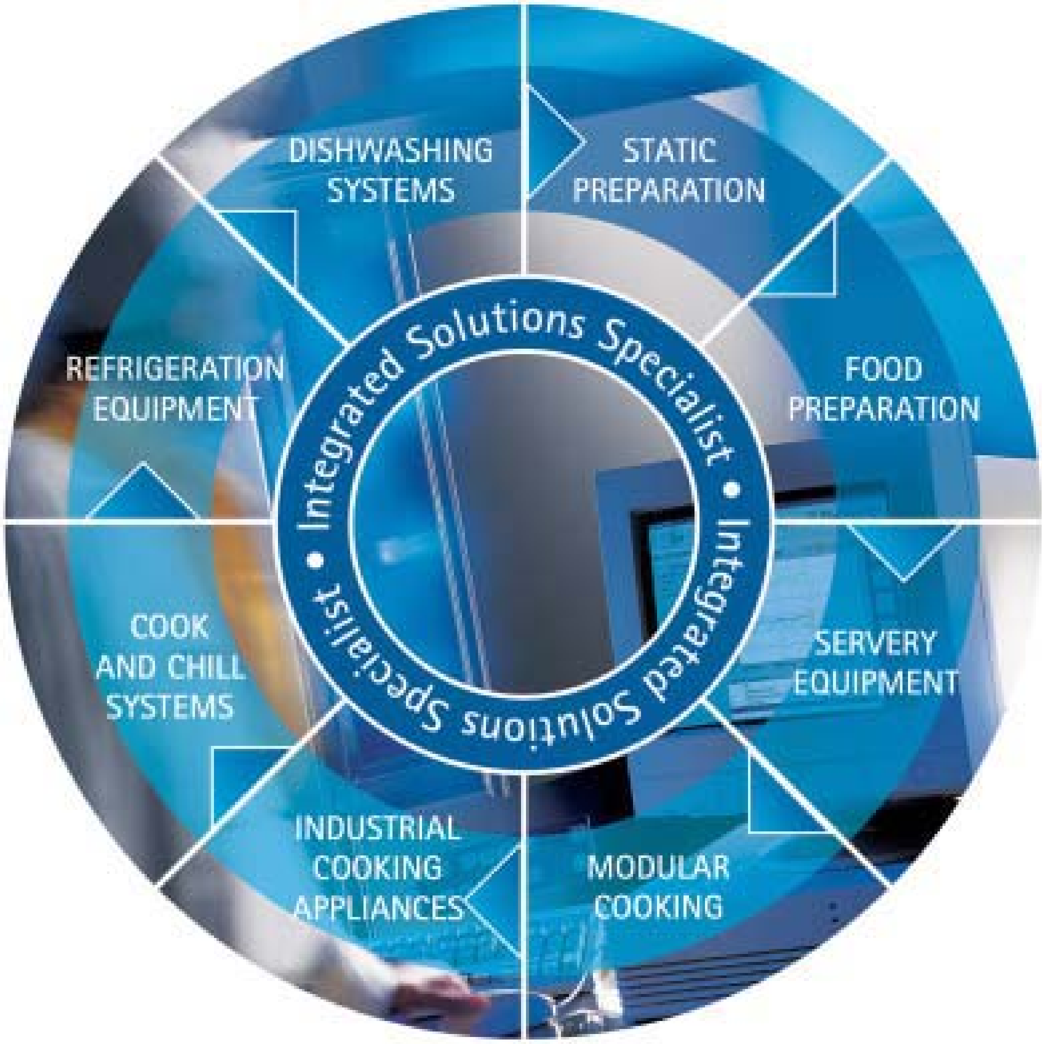
Dishwashing layout with cross-over function

To optimise the function in large dishwashing systems a cross-over loading section increase the overall efficiency, especially when more than one large dishwasher is used. The cross over loading section is only 700 mm high, and the conveyor with the dirty trays & dishes will cross over the loading section at a height of 1050 – 1150 mm. The operator can take the dishes direct from the tray and stack it on the conveyor of the dishwasher.

Example of dishwashing layout for 900 guests/hour kitchen:

- flight type dishwasher with cross over function for plates, bowls, etc.
- for racks with glasses, cups, etc. coming from the sorting table on a chain conveyor
- device for automatic removing of cutlery from the trays
- combined tray and cutlery dishwasher (TCW) with automatic loading of trays and cutlery
- automatic unloading of trays in tray lowerators and of cutlery in a cutlery trolley

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